

WHAT IS CLAIMED IS:

1. A method for packet transmission of multimedia data in a network, the method being for transmitting a group of pictures (GOP), the GOP including a plurality of frames, each of the frames including a plurality of packets, wherein the plurality of frames are of N types of frame, a first to an N -th type of frame, and a packet of a frame of a type of frame is called the packet of the type of frame, the method comprising the steps of:

5 (a) setting i to one, where i is a positive integer;

10 (b) forming an i -th transmission sequence by arranging the packets of the i -th type of frame;

(c) forming an $(i+1)$ -th transmission sequence by putting the packets of the $(i+1)$ -th type of frame between packets of the i -th transmission sequence consecutively;

15 (d) incrementing i by one;

(e) repeating said steps (c) to (d) until i is equal to N ; and

(f) transmitting the N -th transmission sequence.

2. A method according to claim 1, wherein said step (c) comprises the steps of:

(c1) determining whether the packets of the i -th type of frame are put into the i -th transmission sequence so that a last packet of the i -th type of frame is placed in a

location adjacent to a last packet of the i -th transmission sequence; if yes, proceeding to step (c4); if not, proceeding to step (c2);

(c2) after the last packet of the i -th type of frame in the i -th transmission sequence, putting the packets of the $(i+1)$ -th type of frame between the packets of the i -th transmission sequence consecutively;

5 (c3) proceeding to step (c5);

(c4) from a first packet of the i -th transmission sequence, putting the packets of the $(i+1)$ -th type of frame between the packets of the i -th transmission sequence consecutively;

10 (c5) determining whether the packets of the $(i+1)$ -th type of frame are put into the i -th transmission sequence so that a last packet of the $(i+1)$ -th type of frame is placed in a location adjacent to the last packet of the i -th transmission sequence; if yes, proceeding to step (c6); if not, proceeding to step (c8);

15 (c6) from the first packet of the i -th transmission sequence, putting the packets of the $(i+1)$ -th type of frame which have not been put into the i -th transmission sequence between the packets of the i -th transmission sequence consecutively;

(c7) proceeding to said step (c5); and

(c8) obtaining the $(i+1)$ -th transmission sequence after the packets of the $(i+1)$ -th type of frame are placed between the packets of the i -th transmission sequence consecutively.

3. A method according to claim 1, wherein the first type of frame is of the highest importance.

4. A method according to claim 1, wherein the network has bursty packet loss.

5. A method according to claim 4, wherein the network is an internet.

5 6. A method according to claim 1, wherein the multimedia data is of a compression format, and the compression format is of interframe dependency.

7. A method according to claim 6, wherein the compression format is Motion Picture Experts Group (MPEG) format.

10 8. A method according to claim 7, wherein N is equal to three, the first type of frame is I-frame, the second type of frame is P-frame, and the third type of frame is B-frame.

9. A method according to claim 1, being capable of being implemented with an error recovery, wherein the error recovery is either automatic repeat request (ARQ) or forward error correction (FEC).

15 10. A method for packet transmission of multimedia data in a network, the method being for transmitting M groups of pictures (GOPs) including a first GOP to an M-th GOP, each of the GOPs including at most N frames, each of the frames including at most P packets, where M, N and P are integers greater than one, the method comprising the steps of:

20 (a1) setting i to one, wherein i is a positive integer;

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- (a2) setting j to one, wherein j is a positive integer;
- (a3) determining whether a first type of frame of the j -th GOP has a packet number greater than i ; if not, proceeding to step (a5);
- (a4) forming a first transmission sequence by putting an i -th packet of the first type of frame of the j -th GOP into the first transmission sequence consecutively;
- 5 (a5) incrementing j by one;
- (a6) repeating said steps (a3) to (a5) until j is greater than M ;
- (a7) incrementing i by one;
- (a8) repeating said steps (a2) to (a7) until i is greater than P ;
- 10 (b1) setting i to one, wherein i is a positive integer;
- (b2) setting j to one, wherein j is a positive integer;
- (b3) setting k to one, wherein k is a positive integer;
- (b4) determining whether the k -th GOP has a frame number greater than i ; if not, proceeding to step (b7);
- 15 (b5) determining whether the $(i+1)$ -th type of frame of the k -th GOP has a frame number greater than j ; if not, proceeding to step (b7);
- (b6) putting the j -th packet of the $(i+1)$ -th type of frame in the k -th GOP

between packets of the *i*-th transmission sequence consecutively;

(b7) incrementing *k* by one;

(b8) repeating said steps (b4) to (b7) until *k* is greater than M;

(b9) incrementing *j* by one;

5 (b10) repeating said steps (b3) to (b9) until *j* is greater than P;

(b11) forming an *(i*+1)-th transmission sequence by putting the packets of the frames of the *(i*+1)-th type of the GOPs between the packets of the *i*-th transmission sequence consecutively;

(b12) incrementing *i* by one;

10 (b13) repeating said steps (b2) to (b12) until *i* is equal to N; and

(b14) transmitting the N-th transmission sequence.

11. A method according to claim 10, wherein the first type of frame is of the highest importance.

12. A method according to claim 10, wherein the network has bursty loss.

15 13. A method according to claim 10, wherein the network is an internet.

14. A method according to claim 10, wherein the multimedia data is of a compression format, and the compression format is of interframe dependency.

15. A method according to claim 14, wherein the compression format is

Motion Picture Experts Group (MPEG) format.

16. A method according to claim 15, wherein N is equal to three, the first type of frame is I-frame, the second type of frame is P-frame, and the third type of frame is
5 B-frame.

17. A method according to claim 10, being capable of being implemented with an error recovery, wherein the error recovery is either automatic repeat request (ARQ) or forward error correction (FEC).

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